## REMARKS

### *Prosecution*

Applicant respectfully requests reconsideration of the outstanding rejections.

### *Claim Amendments*

Upon entry of the foregoing amendment, claims 27-45 will be pending in the application. Claims 1-26 have been canceled. Claims 27-45 have been added. Support for the new claims can be found throughout the specification and in the claims as originally filed, *inter alia*, and in particular on page 1 lines 7-8, 15-18, 22-24; page 3 lines 1-3; page 4 lines 22-29; page 5 lines 4-7; page 10 line 26 to page 12 line 11; Figures 8-9; and original claims 1, 2, and 32.

In particular, the limitations "peripheral sensory neuropathy"; "stimulate regeneration of sensory nerve axons"; "galanin agonist comprises means for effecting the biological activity of galanin"; and "regeneration into the distal nerve is increased" in claims 27 and 37 can be found in the specification, for example, at page 1 lines 1, 14-25; page 3 lines 1-3; page 4 lines 22-29; page 5 lines 4-7; page 10 line 24 to page 11 line 15; page 12 lines 9-11; and claims 2 and 19.

The limitations "peripheral sensory neuropathy"; "increase the rate of regeneration of sensory nerve axons"; "galanin agonist comprises means for effecting the biological activity of galanin" in claims 30 and 40 can be found in specification, for example, at page 1 lines 1, 14-25; page 3 lines 1-3; page 4 lines 22-29; page 5 lines 4-7; page 10 line 24 to page 11 line 15; page 12 lines 9-11; and claims 2 and 19.

The limitations "over the course of days"; "over the course of weeks"; "after days"; and "after weeks" in claims 28-29, 31-32, 38-39, and 41-42 can be found in the specification, for example, at page 11 lines 1-4; 12-15; and Figures 8-9.

The limitations "comprises an N-terminal fragment of galanin"; "comprises 12 N-terminal amino acids of galanin"; "consists of an N-terminal fragment of galanin"; and "is galanin" in claims 33-37, 40, and 43-45 can be found, for example, at page 1 lines 1, 14-25; page 4 lines 22-29 of the specification.

Applicant respectfully requests entry of the above amendment and submit that the above amendment does not constitute new matter.

***Claim Rejection— 35 U.S.C. § 112, first paragraph***

Claim 18 was rejected under 35 U.S.C. § 112, first paragraph, because, "the specification, while being enabled for *methods comprising the use of galanin or N-terminal fragments of galanin*, does not reasonably provide enablement for *galanin agonists in general* for reasons of record". [emphasis added] Applicant respectfully traverses this rejection.

Applicant respectfully notes that claim 18 has been cancelled rendering this rejection *moot*. Applicant respectfully notes that newly added claims 33-45 are limited to galanin agonists which comprise an N-terminal fragment of galanin. This is commensurate with the scope of what the Office Action indicated as enabled. Office Action of March 14, 2006 ("Office Action") at 3 lines 6-7; 18-20.

Applicant also respectfully notes that newly added claims 27 and 30 are drawn to "galanin agonist comprises means for effecting the biological activity of galanin." Under United States practice, 35 U.S.C. § 112, sixth paragraph, allows applicants to use "means plus function" language in their claims and such language is "construed to cover the corresponding structure...described in the specification and equivalents thereof." As noted above, the Office Action has acknowledged that the specification adequately describes at least two structures, galanin and N-terminal fragments of galanin, and thus the requirements for 35 U.S.C. § 112, sixth paragraph are met. Office Action at 2.

The "means plus function" limitation is read in light of the specification and may be limited by dependent claims. In re Donaldson Co., 16 F.3d 1189, 29 USPQ2d 1845 (Fed. Cir. 1994). Further, by statute, a claim without structure literally includes equivalents and a claim with structure does not literally cover equivalents. Therefore, any dependent claim which has a structural limitation is, by definition, more narrow than the claim without a structural limitation (i.e. a claim in "means plus function format"). 35 U.S.C. § 112, fourth paragraph. Here, claims 27 and 30 recites "galanin agonist comprises means for effecting the biological activity of galanin". This limitation in claims 27 and 30 is narrowed by the definition of such "means" in claim 33, which specifies the means to comprise "12 N-terminal amino acids of galanin"; in claim 34, which specifies the means to comprise "an N-terminal fragment of galanin"; and in claim 35 which specifies that the means consists of "an N-terminal fragment of galanin". Therefore both claims 33-35 further limit the subject matter of claims 27 and 30 by specifying the type of structure which serves as the galanin agonist means. See also Declaration of

Professor Dickenson at ¶ 7-14. Applicant respectfully submits that the newly added claims are within the scope of what is enabled by the specification.

Reconsideration and withdrawal of this rejection is respectfully requested.

***Claim Rejection— § 35 U.S.C. 102(b)***

Claim 18 was rejected under 35 U.S.C. § 102(b) as being anticipated by Luo *et al.* (March 1995) "The effects of pretreatment with tachykinin antagonists and galanin on the development of spinal cord hyperexcitability following sciatic nerve section in the rat." Neuropeptides **28**(3): 161-6 ("Luo *et al.*"). Applicant respectfully traverses this rejection.

Applicant respectfully submits "[a]nticipation under 35 U.S.C. § 102 requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention." Electro Med. Sys. S.A. v. Cooper Life Sciences, 32 USPQ2d 1017, 1019 (Fed. Cir. 1994). Luo *et al.* does not teach a method for the treatment of peripheral sensory neuropathy comprising administering an amount of a galanin agonist effective to treat peripheral sensory neuropathy by means of regeneration.

Applicant respectfully notes that claim 18 has been cancelled rendering this rejection *moot*. Applicant respectfully notes that newly added claims 27 and 37 include distance limitations which can not be met by Luo *et al.* because the reference does not disclose any distance measurements of sensory nerve axon regeneration. Second Wynick Declaration at ¶ 16. Additionally, claims 30 and 40 limitations require an increase in the rate of regeneration of sensory nerve axons which is not disclosed by Luo *et al.* Second Wynick Declaration at ¶ 17.

The Office Action asserts that Luo *et al.* anticipates claim 18 because both administer galanin with inherent properties including stimulating nerve regeneration, citing Ex parte Novitski. 26 USPQ 1391 (Bd. Pat. App. & Inter. 1993). Office Action at 5. However, Luo *et al.* deals exclusively with neuropathic pain behavior, not with peripheral nerve damage such as peripheral sensory neuropathy— peripheral nerve damage is in no way synonymous with chronic neuropathic pain. Second Wynick Declaration at ¶ 18. Thus, Luo *et al.* and the instant claims cover two distinct aspects of therapy, unlike the fact pattern in Ex parte Novitski. Second Wynick Declaration at ¶ 19. Further, Luo *et al.* discloses the administration of galanin directly to the spinal cord, the central nervous system, versus the instant claims which are drawn to peripheral sensory neuropathy which is damage in the peripheral nervous system. Second

Wynick Declaration at ¶ 20. In contrast, Ex parte Novitski concerned the same patient (or plant) population treating homologous conditions (infection) using similar modes of administration.

The Office Action discounts the Declaration by Prof. Zigmond filed July 1, 2004, because "[n]erve regeneration as recited in the instant claim encompassed the preliminary beginnings of regeneration up to and including its full completion and expression" with no other limitations. Office Action at 6. The instant claims include time and distance limitations which are not taught by Luo *et al.* Newly added claims 27 and 37 include a distance limitation drawn to regeneration into the distal nerve which can not be met by Luo *et al.* because the reference does not disclose any distance measurements of sensory nerve axon regeneration. Second Wynick Declaration at ¶ 16. Additionally, claims 30 and 40 include a time limitation requiring the increase in the rate of regeneration over time (e.g. days or weeks) of sensory nerve axons which was not disclosed by Luo *et al.* Second Wynick Declaration at ¶ 17.

The Second Wynick Declaration teaches that the mechanism by which galanin rapidly alters pain activity is most likely by direct modulation of the spinal cord neuronal firing rather than at the level of the dorsal root ganglion (DRG). Second Wynick Declaration at ¶ 21. Therefore, the Second Wynick Declaration teaches that for the galanin administered in Luo *et al.* during the 90 minute period before the animals were sacrificed to effect regeneration, the peptide would have to gain access to the to the cell bodies in the DRG, since this is where the intra-cellular pro-regenerative machinery resides. Second Wynick Declaration at ¶ 22. In the Second Wynick Declaration it is clear that galanin could not have reached the DRG in the 90 minutes after it was administered into the lining of the spinal cord. Second Wynick Declaration at ¶ 23. Galanin could not, therefore, have even begun to affect regeneration in the DRG cell bodies by the time the experiment was terminated. Second Wynick Declaration at ¶ 24.

Reconsideration and withdrawal of this rejection is respectfully requested.

***Claim Rejection— § 103(a)***

Claim 18 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Zhang *et al.* (May 1993) "Effect of peripheral nerve cut on neuropeptides in dorsal root ganglia and the spinal cord of monkey with special reference to galanin." J Neurocytol. **22**(5): 342-81 ("Zhang *et al.*"). Applicant respectfully traverses this rejection.

Applicant respectfully notes that claim 18 has been cancelled rendering this rejection *moot*. Applicant respectfully notes that newly added claims 27 and 37 include distance limitations which can not be met by Zhang *et al.* because the reference does not disclose or suggest any distance measurements of sensory nerve axon regeneration. Second Wynick Declaration at ¶ 26. Additionally, claims 30 and 40 include limitations requiring the increase in the rate of regeneration of sensory nerve axons which was not disclosed or suggested by Zhang *et al.* Second Wynick Declaration at ¶ 27.

The reference cited in the Office Action does not teach or suggest to a person of ordinary skill in the art the invention. Here, the invention is drawn to a method for the treatment of peripheral sensory neuropathy comprising administering an amount of a galanin agonist effective to treat peripheral sensory neuropathy, wherein said peripheral neuropathy was treated by nerve regeneration. Second Wynick Declaration at ¶¶ 9-11.

In contrast, Zhang *et al.* only contains suggestion that "galanin agonists should represent new pharmacological tools to suppress chronic pain" and not with peripheral nerve damage such as peripheral sensory neuropathy. Id. at 375; Second Wynick Declaration at ¶ 28. And, as discussed above, the treatment of peripheral nerve damage is in no way synonymous with chronic neuropathic pain. Second Wynick Declaration at ¶ 29. Thus, Zhang *et al.* and the instant claims cover two distinct phenomena and even though pain and regeneration may both be treated and effected, respectively by galanin, they remain different processes. Second Wynick Declaration at ¶ 30. For instance, most, if not all, of the anti-pain drugs in current use, act at the level of the spinal cord and brain to reduce electrical and chemical excitability and thus reduce pain transmission. Second Wynick Declaration at ¶ 31. In contrast, drugs that stimulate nerve regeneration do so at the level of the dorsal root ganglion (DRG) and/or the site of nerve injury. Second Wynick Declaration at ¶ 32. Therefore, the actions of galanin when administered directly to the spinal cord (central nervous system) to inhibit chronic pain behaviour, in no way implies or predicts regeneration at the level of the sciatic nerve (peripheral nervous system). Second Wynick Declaration at ¶ 33.

In fact, Zhang *et al.* suggests that galanin might be administered to primates (including humans) to suppress chronic pain. Id. at 375; Second Wynick Declaration at ¶ 34. Nothing in Zhang *et al.* provides any expectation that galanin would have any effect other than analgesia. Second Wynick Declaration at ¶ 35. Contrary to any expectation which might be derived from

Zhang *et al.*, the present inventor found the surprising result that nerve regeneration is stimulated by galanin in a dose-dependent manner. Second Wynick Declaration at ¶¶ 12-13. This effect is statistically significant as reported in the specification at page 10 line 17 to page 11 line 15 and Figures 8-9. Second Wynick Declaration at ¶ 14. The standard for unexpected results is "that the differences in results are in fact unexpected and unobvious and of both statistical and practical significance." Ex parte Gelles, 22 USPQ2d 1318, 1319 (Bd. Pat. App. & Inter. 1992). As demonstrated in the specification and discussed herein, the inventor has shown that the use of galanin for nerve regeneration is both unexpected and non-obvious as well as statistically and practically significant. Second Wynick Declaration at ¶¶ 9-14. Thus it would not have been obvious to one of ordinary skill in the art to make a leap from the suggestion of Zhang *et al.* to the claimed treatment of peripheral sensory neuropathy.

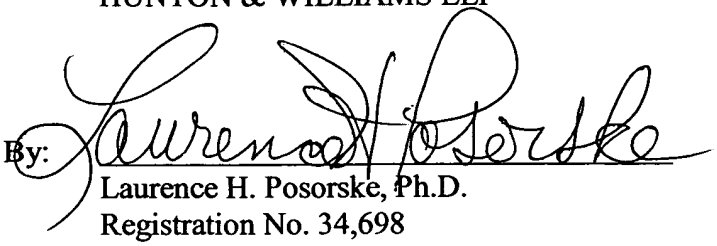
Reconsideration and withdrawal of this rejection is respectfully requested.

## CONCLUSION

Applicant respectfully submits that claims 27-45 of the instant application are in condition for allowance, and such disposition is earnestly solicited. Should the Examiner believe that any patentability issues remain after consideration of this Response, the Examiner is invited to contact the Applicant's undersigned representative to discuss and resolve such issues.

Respectfully submitted,
HUNTON & WILLIAMS LLP

Dated: September 13, 2006

By: 
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